

What is claimed is:

- 1 1. A method of correcting reflectance comprising the steps of:
  - 2 A. determining a reflectance constant for a test product at a first wavelength for  
3 which reflectance does not substantially change with the presence of a test  
4 substance;
  - 5 B. with the test product loaded with the test substance, determining a reflectance  
6 at a second wavelength for which signal-to-noise ratio is maximized and  
7 determining a measured reflectance at the first wavelength; and
  - 8 C. determining a corrected reflectance as the product of the reflectance with a  
9 ratio of the reflectance constant to the measured reflectance.
- 1 2. The method of claim 1 wherein the test substance is an analyte.
- 1 3. The method of claim 1 wherein the test product is a test strip comprising a plurality  
2 of test pads.
- 1 4. The method of claim 1 wherein the test product is a reagent cassette.
- 1 5. The method of claim 1 wherein the measured reflectance is determined with a pulse  
2 scan at the second wavelength.
- 1 6. The method of claim 1 wherein the reference reflectance is determined with a pulse  
2 scan at the first wavelength.

1 7. The method of claim 1 wherein the reference reflectance is determined before  
2 conditions relative to a concentration of the test substance substantially changes from the  
3 time the measured reflectance was determined.

1 8. A reflectance-based system including reflectance correction, the system comprising:  
2 A. transmitters for transmitting signals at different wavelengths to a test product  
3 and detectors configured for detecting reflectance at the different  
4 wavelengths from the test product;  
5 B. a set of storage devices configured for storing reflectance values;  
6 C. a set of processors configured to execute a program configured to implement  
7 a method of correcting reflectance comprising the steps of:  
8 i) determining a reflectance constant for the test product at a first  
9 wavelength for which reflectance does not substantially change with  
10 the presence of a test substance;  
11 ii) with the test product loaded with the test substance, determining a  
12 reflectance at a second wavelength for which signal-to-noise ratio is  
13 maximized and determining a measured reflectance at the first  
14 wavelength; and  
15 iii) determining a corrected reflectance as the product of the reflectance  
16 with a ratio of the reflectance constant to the measured reflectance.

1 9. The system of claim 8 wherein the test substance is an analyte.

1 10. The system of claim 8 wherein the test product is a test strip comprising a plurality  
2 of test pads.

1 11. The system of claim 8 wherein the test product is a reagent cassette.

1 12. The system of claim 8 wherein the measured reflectance is determined with a pulse  
2 scan at the second wavelength.

1 13. The system of claim 8 wherein the reference reflectance is determined with a pulse  
2 scan at the first wavelength.

1 14. The system of claim 8 wherein the reference reflectance is determined before  
2 conditions relative to a concentration of the test substance substantially changes from the  
3 time the measured reflectance was determined.

1 15. A computer program code embodying instructions for execution by at least one  
2 processor to perform a method for correcting reflectance in a reflectance-based device  
3 comprising transmitters for transmitting signals at different wavelengths to a test product  
4 and detectors configured for detecting reflectance at the different wavelengths from the test  
5 product, a set of storage devices configured for storing reflectance values, the method  
6 comprising:

7 A. determining a reflectance constant for a test product at a first wavelength for  
8 which reflectance does not substantially change with the presence of a test  
9 substance;

10 B. with the test product loaded with the test substance, determining a reflectance  
11 at a second wavelength for which signal-to-noise ratio is maximized and  
12 determining a measured reflectance at the first wavelength; and

13 C. determining a corrected reflectance as the product of the reflectance with a  
14 ratio of the reflectance constant to the measured reflectance.

- 1 16. The computer program product of claim 15 wherein the test substance is an analyte.
- 1 17. The computer program product of claim 15 wherein the test product is a test strip  
2 comprising a plurality of test pads.
- 1 18. The computer program product of claim 15 wherein the test product is a reagent  
2 cassette.
- 1 19. A reflectance-based system including reflectance correction, the system comprising:  
2 A. transmitters for transmitting signals at different wavelengths to a test product  
3 and detectors configured for detecting reflectance at the different  
4 wavelengths from the test product;  
5 B. a set of storage devices configured for storing reflectance values;  
6 C. means for determining a reflectance constant for the test product at a first  
7 wavelength for which reflectance does not substantially change with the  
8 presence of a test substance;  
9 D. with the test product loaded with the test substance, means for determining a  
10 reflectance at a second wavelength for which signal-to-noise ratio is  
11 maximized and means for determining a measured reflectance at the first  
12 wavelength; and  
13 E. means for determining a corrected reflectance as the product of the  
14 reflectance with a ratio of the reflectance constant to the measured  
15 reflectance.
- 1 20. The system of claim 19 wherein the test substance is an analyte.

1 21. The system of claim 19 wherein the test product is a test strip comprising a plurality  
2 of test pads.

1 22. The system of claim 19 wherein the test product is a reagent cassette.